REMARKS

INTRODUCTION

In accordance with the foregoing, no claims have been amended. Claims 1-29 are pending and under consideration.

CLAIM REJECTIONS

Claims 1, 3-8, 10-12, 19, 20, 22-24, 28 and 29 were rejected under 35 USC 103(a) as being unpatentable over Saito (US 6,404,145) (hereinafter "Saito") in view of Park et al. (US 7,098,903) (hereinafter "Park") and further in view of Shin (US 5,078,476) (hereinafter Shin").

Claims 13-15, 17, 18 and 21 were rejected under 35 USC 103(a) as being unpatentable over Saito in view of Shin.

Claims 2 and 25-27 were rejected under 35 USC 103(a) as being unpatentable over Saito in view of Park and Shin and further in view of Yoo et al. (US 2003/0214478) (hereinafter "Yoo").

Claim 9 was rejected under 35 USC 103(a) as being unpatentable over Saito in view of Park and Shin and further in view of Anderson et al. (US 6,678,005) (hereinafter "Anderson").

Claim 16 was rejected under 35 USC 103(a) as being unpatentable over Saito in view of Shin and further in view of Anderson et al. (US 6,678,005) (hereinafter "Anderson").

Claims 1-3

Claim 1 recites: "...a controller to detect the extracted horizontal synchronization signal from the digital video signals to determine a display mode, to output the first and second predetermined sampling clock signals to the signal converter and the scaler, respectively, according to the determined display mode, and to generate inverter on/off signals whenever the horizontal synchronization signal is transiently changed; and an inverter to drive the backlights in synchronization with the detected horizontal synchronization signal and being turned on or off according to the inverter on/off signals, input from the controller, wherein the controller generates the inverter off signals until the horizontal synchronization signal is detected."

As noted in the Office Action, neither of Saito and Park discuss the feature of claim 1 where the controller generates the inverter off signals until the horizontal synchronization signal is detected. Instead, the Office Action relies on Shin to show this feature of claim 1 and specifically relies on 1:37-1:67 of Shin.

As discussed in Shin, it is an object of Shin to provide an automatic backlight on/off control apparatus for use in an LCD TV which prevents electric power from being unnecessarily consumed by turning a backlight off in case there is no input of any video signal while the backlight turns on according to the pulse signals of the pulse generating member only in case there is a video signal input. Another object of Shin is to provide an improved backlight on/off control apparatus for amplifying composite video signals, detecting a synchronizing signal out of the composite video signals, determining whether the video signal is inputted or not according to the synchronizing signal being detected or not, and supplying or cutting off the electric power to the backlight according to the determination of the existing or non-existing of the video signal input. Further in Shin, the disclosure of Shin relates to an automatic backlight on/off control apparatus for use in a liquid crystal display television includes a buffer amplifier, a synchronizing signal detector, a switching controller, and a backlight power controller for preventing electric power consumed unnecessarily by turning the backlight off in case there is no input of any video signal and turning the backlight on according to the pulse signal of a pulse generating member only in case there is a video signal input. Shin, 1:37-2:4.

In particular, the Examiner appears to rely upon the discussion in Shin of "detecting a synchronizing signal out of the composite video signals, determining whether the video signal is inputted or not according to the synchronizing signal being detected or not, and supplying or cutting off the electric power to the back light according to the determination of the existing or non-existing of the video signal input" to obviate the feature of claim 1 where the controller generates the inverter off signals until the horizontal synchronization signal is detected.

In contrast to the assertions in the Office Action, it is respectfully submitted that Shin does not discuss cutting off inverter off signals, as recited in claim 1. Instead, Shin discusses a switch TR24 through which the backlight voltage Vcc must pass. If the synchronizing signal detecting member 4 detects a video signal, the member 4 outputs a synchronizing signal, which ultimately switches on the transistor TR24. Alternatively, if the synchronizing signal detecting member 4 does not detect a video signal, no synchronizing signal is output, and the transistor TR24 is in an off state, and therefore the voltage Vcc does not pass through the switch TR24 to the backlight 2. Accordingly, it is respectfully submitted that Shin does not cut off inverter off signals as recited in claim 1, and claim 1 is not obviated by Saito, Shi and Park, taken alone or in combination.

Further in the Office Action, in the “Response to Arguments” section, the Examiner notes that the vertical sync period shown in Figure 3 of Saito would also correspond to the horizontal

sync period, and therefore the inverter off signal would also be controlled according to the horizontal synchronization signal. Further, the Office Action proposes to revise, as shown on page 26 of the Office Action, Figure 3 of Saito, to replace the term "vertical" with "horizontal." This reasoning is respectfully traversed. Briefly, as is discussed in the specification of the present application and well known to a person of ordinary skill in the art, vertical and horizontal sync signals are different and not interchangeable. Saito clearly shows in Figure 3 a vertical sync signal, not a horizontal sync signal. Accordingly, it is still respectfully submitted that the feature of claim 1 where the controller generates the inverter off signals until the horizontal synchronization signal is detected is not obviated by Saito.

This technical feature of claim 1 provides that the inverter is turned off during the display mode change, and turned on thereafter, but the inverter is prevented from being turned off due to a transient horizontal synchronization signal, which in turn provides that the panel and the inverter in the LCD are synchronized with one another to avoid oscillatory interference therebetween and remove noise on a screen, and the inverter is turned off during the display mode change to prevent the backlights from being turned off.

Claims 2 and 3 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejections is requested.

Claims 4-29

Claim 4 recites: "...applying backlight off signals to the inverter while the horizontal synchronization signal is changing, and until the horizontal synchronization signal is detected, and applying backlight on signals to the inverter when the horizontal synchronization signal is detected."

Claim 6 recites: "...generating the inverter off signal until the second horizontal synchronization signal is detected; and turning the inverter on or off according to the inverter on/off signals."

Claim 13 recites: "...resuming driving the backlights in synchronization with a second synchronization signal in a video signal if the display mode change is completed; and the stopping the driving continuing until the second synchronization signal is detected."

Claim 19 recites: "...the inverter being turned on or off according to the inverter on/off signals, and the inverter off signals being generated until a horizontal synchronization signal is detected."

Claim 20 recites: "...wherein inverter on/off signals are generated during a transient horizontal synchronization signal change to prevent the backlights from being turned off, the inverter off signals being generated until a horizontal synchronization signal is detected."

Claim 21 recites: "...driving the backlights in synchronization with the second synchronization signal if the changing of the display mode is determined to be completed; and continuing the stopping of the driving until the second synchronization signal is detected."

Claims 22 recites: "...an inverter to drive the backlights in synchronization with a second synchronization signal and being turned on or off according to the inverter on/off signals input from the controller, wherein the controller generates the inverter off signals until the second synchronization signal is detected."

Claim 29 recites: "...wherein the controller generates the inverter off signals until the second synchronization signal is detected."

Similar to the argument for claim 1, it is respectfully submitted that none of the relied upon references discuss the above noted features of independent claims 4, 6, 13, 19-22 and 29. Regarding the note in the Office Action that the first and second synchronization signals are a signal synchronization signal, this reasoning is respectfully traversed on the grounds that it is apparent that the first and second synchronization signals are different as these claim elements are separately recited.

Claims 5, 7-12, 14-18 and 23-28 depend on one of claims 4, 6, 13 and 22, respectively, and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejections is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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